

WHAT IS CLAIMED IS:

1. A plasma display panel (PDP) driver for applying a driving voltage to a panel capacitor formed between first and second electrodes and having first and second ends, the PDP driver comprising:

5 a first voltage source having a positive polarity terminal and a negative polarity terminal for supplying a first voltage;

 a second voltage source for supplying a second voltage;

 a first switch coupled between a first end of the panel capacitor and the positive polarity terminal of the first voltage source;

10 a second switch coupled between the positive polarity terminal of the first voltage source and the second voltage source;

 a third switch coupled between the first end of the panel capacitor and a negative polarity terminal of the first voltage source; and

15 a fourth switch coupled between the negative polarity terminal of the first voltage source and the second voltage source, wherein

 when the first and fourth switches are turned on, a third voltage is applied to the first end of the panel capacitor, the third voltage being a voltage difference between the first and second voltages,

20 when the second and third switches are turned on, a fourth voltage is applied to the first end of the panel capacitor, the fourth voltage being a voltage difference between a negative value of the first voltage and the second voltage, and

 wherein the first and fourth switches and the second and third switches are alternately turned on to alternately apply the third and fourth voltages,

respectively, to the first end of the panel capacitor.

2. The PDP driver of claim 1, wherein a voltage difference between the third and fourth voltages is a sustain voltage for a PDP.

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3. The PDP driver of claim 1, further comprising an inductor coupled to the first end of the panel capacitor, wherein

the voltage at the first end of the panel capacitor is changed between the third and fourth voltages because of resonance of the inductor and the panel capacitor.

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4. The PDP driver of claim 3, further comprising first and second resonance switches that are coupled in parallel between the inductor and the second voltage source.

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5. The PDP driver of claim 4, further comprising a first diode coupled between the first resonance switch and the inductor and a second diode coupled between the second resonance switch and the inductor.

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6. The PDP driver of claim 1, wherein each of the first, second, third and fourth switches has a body diode.

7. The PDP driver of claim 1, wherein the fourth voltage is applied to the second end of the panel capacitor while the third voltage is applied to the first

end of the panel capacitor, and

the third voltage is applied to the second end of the panel capacitor while the fourth voltage is applied to the first end of the panel capacitor.

5 8. The PDP driver of claim 7, further comprising:

a third voltage source having a positive polarity terminal and a negative polarity terminal for supplying a fifth voltage, which is substantially the same as the first voltage.

10 a fifth switch coupled between the second end of the panel capacitor and the positive polarity terminal of the third voltage source;

a sixth switch coupled between the positive polarity terminal of the third voltage source and the second voltage source;

a seventh switch coupled between the second end of the panel capacitor and the negative polarity terminal of the third voltage source; and

15 an eighth switch coupled between the negative polarity terminal of the third voltage source and the second voltage source.

20 9. A plasma display panel (PDP) driver for applying a driving voltage to a panel capacitor formed between first and second electrodes and having first and second ends, the PDP driver comprising:

a first voltage source having a positive polarity terminal and a negative polarity terminal for supplying a first voltage;

a second voltage source for supplying a second voltage;

a first switch coupled between the first end of the panel capacitor and

the positive polarity terminal of the first voltage source; and

a second switch coupled between the first end of the panel capacitor and the negative polarity terminal of the first voltage source,

wherein a first electrical path is formed between the negative polarity terminal of the first voltage source and the second voltage source so as to apply a third voltage to the first end of the panel capacitor when the first switch is turned on, the third voltage being a difference between the first and second voltages;

wherein a second electrical path is formed between the positive polarity terminal of the first voltage source and the second voltage source so as to apply a fourth voltage to the first end of the panel capacitor when the second switch is turned on, the fourth voltage being a difference between a negative value of the first voltage and the second voltage, and

wherein the first and second switches are alternately turned on.

10. The PDP driver of claim 9, further comprising:

a third switch coupled between the negative polarity terminal of the first voltage source and the second voltage source so as to form the first electrical path; and

a fourth switch coupled between the positive polarity terminal of the first voltage source and the second voltage source so as to form the second electrical path.

11. The PDP driver of claim 9, wherein the fourth voltage is applied to

the second end of the panel capacitor while the third voltage is applied to the first end of the panel capacitor, and

the third voltage is applied to the second end of the panel capacitor while the fourth voltage is applied to the first end of the panel capacitor.

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12. The PDP driver of claim 11, wherein a voltage difference between the third and fourth voltages is a sustain voltage for a PDP.

13. The PDP driver of claim 12, wherein the first voltage is one half of the sustain voltage, and the second voltage is a ground voltage.

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14. The PDP driver of claim 11, further comprising:

a third voltage source having a positive polarity terminal and a negative polarity terminal for supplying a fifth voltage, which is substantially the same as the first voltage;

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a third switch coupled between the second end of the panel capacitor and the positive polarity terminal of the third voltage source; and

a fourth switch coupled between the second end of the panel capacitor and the negative polarity terminal of the third voltage source,

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wherein a third electrical path is formed between the positive polarity terminal of the third voltage source and the second voltage source so as to apply the third voltage to the second end of the panel capacitor when the third switch is turned on;

wherein a fourth electrical path is formed between the negative polarity

terminal of the third voltage source and the second voltage source so as to apply the fourth voltage to the second end when the fourth switch is turned on, and

wherein the third and fourth switches are alternately turned on.

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15. The PDP driver of claim 9, further comprising a power recovery section coupled to the first end of the panel capacitor, the power recovery section including an inductor, and being adapted for using resonance generated between the inductor and the panel capacitor to change the voltage at the first
10 end of the panel capacitor.

16. The PDP driver of claim 15, wherein the power recovery section uses a voltage difference between the first and second voltage sources to inject current to the inductor, and generates the resonance while the current flows to
15 the inductor.

17. A method for driving a plasma display panel (PDP) by alternately applying first and second voltages to a panel capacitor formed between first and second electrodes, comprising:

20 coupling a positive polarity terminal of a floating voltage source for supplying a third voltage to a first end of the panel capacitor;

coupling a negative polarity terminal of the floating voltage source to a first voltage source for supplying a fourth voltage;

coupling the negative polarity terminal of the floating voltage source to

the first end of the panel capacitor; and

coupling the positive polarity terminal of the floating voltage source to the first voltage source,

wherein a voltage difference between the third and fourth voltages corresponds to the first voltage, and a voltage difference between a negative value of the third voltage and the fourth voltage corresponds to the second voltage.

18. The method of claim 17, wherein coupling a positive polarity terminal further comprises applying the second voltage to the second end of the panel capacitor, and

coupling a negative polarity terminal further comprises applying the first voltage to the second end of the panel capacitor.

19. The method of claim 18, wherein a voltage difference between the first and second voltages is a sustain voltage for a PDP.

20. The method of claim 17, further comprising using resonance of an inductor coupled to the first end of the panel capacitor to change the voltage at the first end, before applying the second voltage to the first end of the panel capacitor.